

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently amended) A ~~modified~~ polyethylene terephthalate-containing polymer ~~copolymer comprising a~~ formed by polymerizing a mixture comprising (a) terephthalic acid or its an ester equivalent thereof, (b) an ethylene glycol, and a flexible long chain (c) an aliphatic dicarboxylic acid or its an ester equivalent thereof, and (d) a hydroxy terminated polyether polyol,

wherein in which the mixture comprises: (1) a molar ratio of the ethylene glycol and PTA is the terephthalic acid of 1 to 3.5 with (2) 2 to 10 weight percent of the aliphatic dicarboxylic acid based on polymer PTA the weight of the polymer; a (3) the hydroxy terminated polyether polyol in which an amount such that the hydroxy terminated polyether polyol is equivalent to 1 to 5 weight percent in the polymer; an (4) the aliphatic or alicyclic diol in which an amount such that the aliphatic or alicyclic diol is equivalent to 1 to 5 weight percent in the polymer.

2. (Currently amended) A method for making a ~~modified~~ polyethylene terephthalate-containing polymer ~~copolymer~~ comprising:

preparing a slurry mixture comprising of MEG and PTA a glycol and terephthalic acid or an ester equivalent thereof in molar ratio of 1 to 3.5, wherein the mixture further comprises with 2 to 10 weight percent an aliphatic dicarboxylic acid based on polymer and

charging the same mixture in the Esterification a reactor;

esterifying the mixture under nitrogen pressure of 1 to 2 kg/cm²g and temperature 250°C to 290°C, removing byproduct, water, and excess MEG by using separation tower,

adding catalyst Sb₂O₃, 1 to 5 weight % a hydroxyl terminated polyether polyol, or

~~acyclic diol or aliphatic diol, the thermal stabilizer, H_3PO_4 and TiO_2 at the end of esterification to the mixture;~~

~~transferring the same to Polycondensation reactor under nitrogen pressure, and carrying out a polycondensation reaction,~~

~~wherein the polymer is formed in a continuous polymer fiber manufacturing process under vacuum and at temperature around 250 to 290°C and draining the polymer as strands.~~

3. (Currently amended) A method for making a ~~modified~~ polyethylene terephthalate-containing polymer copolymer comprising:

reacting polymerizing a mixture comprising an aliphatic dicarboxylic acid in an amount of 2 to 10-weight percent based on the weight of the polymer, and PTA with an excess of MEG a glycol and terephthalic acid or an ester equivalent thereof at temperature between 250 to 290°C;

~~injecting additives like antimony trioxide (200-400 ppm), titanium dioxide (0.2-0.3%) and 1 to 4-weight percent of a hydroxy terminated polyether polyol or acyclic diol or aliphatic diol based on the weight of the polymer[[,]] into oligomer line before entering into the vacuum flashing stage the mixture;~~

~~removing excess MEG, keeping the temperature of flasher between 265 to 290°C and the vacuum in the range of 100 to 150 mm Hg;~~

~~obtaining a low molecular weight a poly(alkylene dicarboxylate)-containing pre-polymer by maintaining the temperature in the Pre-polymerizer at 270 to 290°C and the vacuum in the range of 10 to 30 mm Hg;~~

~~removing any MEG remaining in the reaction mass and producing high molecular weight polyester at 270 to 290°C at a vacuum level of 0.1 to 3.0 mm Hg excess glycol from the mixture.~~

4. (Currently amended) The method as claimed in ~~claims~~ claim 2 or 3, wherein the said method is a continuous or batch polymerization method.

5. (Currently amended) The ~~copolymer and its method of making~~ polymer as claimed in ~~claims~~ claim 1 to 3 wherein said aliphatic dicarboxylic acid is selected from the group consisting of adipic acid, sebacic acid, and azelaic acid [[, etc]].

6. (Currently amended) The ~~copolymer and its method of making~~ polymer as claimed in ~~claims~~ claim 1 to 3 wherein the hydroxy terminated polyether polyol or the aliphatic or alicyclic diol is selected from the group consisting of polyethylene glycol (PEG), Monoethylene glycol (MEG), and polypropylene glycol (PPG) etc.

7. (Currently amended)) A ~~copolymer~~ filament comprising said ~~copolymer~~ polymer of ~~as claimed in claim 1 which is melt spun into filament~~.

8. (Original) The filament as claimed in claim 7, wherein said filament is dyed with dispersed dye without dye carrier to have a dye index greater than 100.

9. (Currently amended) The filament as claimed in ~~claims~~ claim 7 to 8, wherein said dye index of said dyed filament is at least about 120-600.

10. (Currently amended) The filament as claimed in ~~claims~~ claim 7 to 9, wherein a controlled shrinkage of said filament is 6 to 10 %.

11. (Currently amended) A yarn comprising said filaments as claimed in ~~claims~~ claim 7 to 10, wherein said yarn is POY or FDY.

12. (Original) The yarn as claimed in claim 11, wherein said yarn is optionally

texturised to obtain DTY or FTTY.

13. (Currently amended) The yarn as claimed in ~~claims~~ claim 11 ~~to 12~~, wherein said yarn is dyed with a dispersed dye without dye carrier at 100°C to have a dye index greater than 100.

14. (Currently amended) The yarn as claimed in ~~claims~~ claim 11 ~~and 13~~, wherein said dye index of said dyed yarn is at least about 120-600.

15. (Currently amended) The yarn as claimed in ~~claims~~ claim 11 ~~to 14~~, wherein said yarn has a controlled shrinkage of 6 to 10%.

16. (Currently amended) A staple fiber comprising said ~~copolymer~~ polymer of as ~~claimed in claim 1 is melt spun and further drawline processed into staple fiber.~~

17. (Original) The staple fiber as claimed in claim 16 wherein said staple fiber is dyed with a dispersed dye without dye carrier at 100°C to have a dye index greater than 100.

18. (Currently amended) The staple fiber as claimed in ~~claims~~ claim 16 ~~and 17~~ wherein said dye index of said dyed yarn is at least about 120-600.

19. (Currently amended) The staple fiber as claimed in ~~claims~~ claim 16 ~~to 18~~, wherein said yarn has a controlled shrinkage of 6 to 10%.

20. (Currently amended) A yarn comprising staple fibers as claimed in ~~claims~~ claim 16 ~~to 19~~.

21. (Original) The yarn as claimed in claim 20, wherein said yarn is dyed with a dispersed dye without dye carrier at 100°C to have a dye index greater than 100.

22. (Currently amended) The yarn as claimed in ~~claims~~ claim 20 ~~and 21~~, wherein said dye index of said dyed yarn is at least about 120-600.

23. (Currently amended) The yarn as claimed in ~~claims~~ claim 20 ~~to 22~~, wherein said yarn has a controlled shrinkage of 6 to 10%.

24. (Currently amended) The yarn as claimed in ~~claims~~ claim 11 ~~to 15 and 20 to 23~~, wherein said yarn is used to produce woven or knitted fabric.

25. (Currently amended) A woven or knitted fabric comprising yarn as claimed in ~~claims~~ claim 11 ~~to 15 and 20 to 23~~.

26. (Original) The fabric as claimed in claim 25, wherein said fabric is dyed with disperse dye without carrier to have a dye index greater than 100 and 6 to 10% controlled shrinkage.

27. (Canceled)

28. (New) The method of claim 2, wherein the glycol and the terephthalic acid or the ester equivalent thereof is in a molar ratio of 1 to 3.5, further wherein the mixture comprises 2 to 10 weight percent the aliphatic dicarboxylic acid based on the weight of the polymer and 1 to 5 weight % of the hydroxyl terminated polyether polyol based on the weight of the polymer.